USING PPP’s TO DELIVER SUCCESSFUL RAIL PROJECTS

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Abstract

The paper explores the effectiveness of using Public Private Partnership deals to improve or create railway assets. The opportunities and issues involved are applicable to other asset-intensive and safety critical utilities with a high level of human interaction and large investment needs. The author draws upon personal experience of projects from the UK and Europe, involving PPP’s, and also privatisations and restructurings with similar characteristics. From this experience, a number of lessons are drawn of interest to suppliers and, particularly, to clients, promoters and funders of such projects. The author concludes that PPP’s are valuable for the delivery of large infrastructure projects, including railways, in circumstances where there is social and/or economic need for the utility, but where the client’s access to capital funding is limited. There are, however, some disadvantages for certain types of client, which will be exacerbated when the project specification and controls are weak. Accordingly, close collaboration between the client and his professional advisers, together with a willingness to accept the strictures of PPP, are essential factors for success.

Keywords: PPP, privatisation, restructuring, infrastructure, railway, private finance

1. Introduction

In the United Kingdom, policies to increase the use of private capital to fund public works were introduced by the Conservative Government in the 1980s, through a series of privatisations and Private Finance Initiative (PFI) schemes applied to the energy, telecommunications, and transport sectors, and to prisons, schools, and hospitals. Since 1997, the British Labour Government has continued with a development of PFIs, which it calls Public Private Partnerships (PPPs).

The energy and telecommunication privatisations have been viewed as very successful in creating more competitive and customer-orientated industries, whereas the national rail privatisation has been beset by difficulties. PFI and PPP projects have had favourable outcomes, on balance, and have been most successful where the client specification was clear and appropriate, and where the contracted price was fair and reasonable.

Governments in many countries now use PPPs to deliver large public projects whilst meeting targets for reduced public borrowing, by avoiding financing the large capital costs directly. PPPs also enable Governments to deliver such projects without the cost overruns often encountered in public procurement, by harnessing the involvement of the Private Sector to take many of the inherent risks.

This paper describes some examples of these initiatives, as applied to railways, through the author’s experiences as a Zone Director of Railtrack (the former owner of the British national railway infrastructure network); and later as a Director of Arup leading Technical Adviser teams in the development of Network Rail (the successor to Railtrack), the PPP for the London Underground, and proposed PPP’s for the East London Line Project and for extensions to the
Athens Metro System. Arup experience on the UK’s Channel Tunnel Rail Link is also briefly discussed.

Some lessons are drawn from these experiences, which should be seriously considered by any public or private body contemplating privatisations or Public Private Partnerships.

2. Client Rationales for Privatisations and PPP's

There are a variety of reasons for public authorities seeking increased private sector participation in public works. Most or all have some validity, but the extent of their successful application to a particular industry or project depends on the objectives of the public sector client, and its ability to successfully deliver the drafting, negotiation, and control of the contract in a way that the private sector will find acceptable, particularly in relation to the risk profile on offer.

Public sector companies (including Government departments) often have unclear or complex remits, arising principally from the political environment within which they operate. Delivering the core business, such as railway services, may be confused with unwritten secondary objectives such as providing employment for social reasons regardless of economic need. Similarly, the financial objectives may not be entirely clear, much less their priority over other politically driven imperatives (for example, in the pricing of fares). For these reasons, the public sector is often unfairly criticised for being inefficient in its management and delivery of large projects.

The private sector does not like unclear objectives, and so the development of privatisations and PPPs should force the client to think very carefully about his key objectives and their priorities, since these are the basis of the contract. This is a worthwhile discipline regardless of private sector involvement.

When the private sector is involved, a sharp business focus and new expertise are injected into the project, together with private capital. Whilst this is very welcome, and may be the only way open to the public sector to fund improved services, the value achieved depends very much upon the client’s skill in managing the relationship, and transferring appropriate levels of risk to the private sector partner.

The ultimate success of the project can usually be traced back to the client's initial strategic decisions. The scale and timing of the project, the budget, the procurement strategy, and the arrangements for financing are among the key issues that set the framework for success. Further key issues are the client’s attitude to the scale and apportionment of risk transfer, and the level of technical involvement he wishes to have in the control and direction of the project.

To be successful, projects should be led by a competent and proactive client team (including technical, financial and legal advisers), which knows what it wants and how to get it. Advisers can assist clients to establish their team; putting in place the organisation, procedures and systems to define, procure, monitor and control the project. They can also provide experienced members of staff into the client team, providing technical and management expertise to support the client's expertise in his own area of business. However, the key decisions regarding the services to be delivered, and the flows of public finance, must always be taken to the client.

3. Procurement Alternatives for Public Sector Projects
There are many procurement strategies available for the delivery of large infrastructure projects, each carrying a different measure of risk for the client in terms of time, cost and quality, and each with its own opportunities and constraints for the client to provide input to the project. A common feature, however, is that the client must state clearly what he requires at the outset, in either ‘prescriptive’ or ‘performance-based’ terms, and resist changing his mind once contracts have been signed. Further, it must be understood that, from contract award onwards, the supplier is given control over any remaining specification activities within the standards and other parameters laid down by the client. If the client tries to intrude, or seeks to modify his requirements, the success of the project is in jeopardy.

Partnering arrangements are increasingly used, usually as non-legally binding understandings that exist between the various parties, supporting but outside of the formal contractual relationships. They are intended to encourage cooperative behaviours in the best interests of a successful project outcome and, thereby, from each of the partners.

Incentivisation arrangements for the contractor and, sometimes, for the client’s advisers may be adopted independent of the method of procurement. The incentive (reward and penalty) regime should relate directly and proportionately to the principal service deliverables, and net costs if appropriate, and should be tested that it does not generate perverse supplier behaviours.

PPPs represent an outer limit of a range of procurement strategies that include:

3.1 Traditional Lump Sum Contracting

The client, with consultant support, prepares tender designs and specifications, which are usually ‘prescriptive’, but may have some ‘performance based’ elements. The client then tenders to contractors who submit lump sum bids, and the successful contractor may subsequently sublet individual packages to subcontractors who build to the consultant’s design or their own development thereof. The works are inspected for approval by the consultant.

3.2 Two Stage Tender

In the first stage, the client tenders work to contractors on the basis of contract conditions, an outline design, and programme. The successful contractor may agree a guaranteed maximum price (GMP), submits his percentage of cost for overhead and profit, and a lump sum for preliminaries. In the second stage, the contractor provides pre-construction advice and invites open book tenders from subcontractors. The price is concluded and the contract signed when up to about 70% of work has been tendered, or when the Contractor can sensibly offer a GMP. This strategy can be used with traditional or Design & Build (novation) procurement.

3.3 Design & Build (without novation)

The client, or his consultant, prepares outline requirements (a ‘preliminary’ or ‘reference’ design) that are tendered to contractors, who submit a lump sum price with fixed time for completion. The contractor engages his professional team, including designers to complete the client’s design. Alternatively, in D&B (with novation), the client engages consultants to prepare the design, and they are later novated to the successful contractor (who assumes responsibility for paying them and for their work).

3.4 Construction Management
The client appoints, at an early stage, a consultant as his Construction Manager (CM). Consultants then prepare detailed designs (details relating to later packages need not be finalised at this stage). The CM engages (on behalf of client) package contractors to execute each package on a lump sum / fixed price basis, and coordinates and administers each trade contract. The CM is paid either a fixed price, or on a time basis, or a percentage of the construction costs. Additionally, these may be an incentivisation arrangement based on target costs.

3.5 Management Contracting

The client appoints a Management Contractor (MC) at an early stage. He engages consultants to prepare the detailed design. The MC does not carry out work packages but engages subcontractors (known as works contractors) to execute each package on a lump sum / fixed price basis. The MC coordinates and administers each works contract, and the contractors give warranties direct to the client. The MC is either reimbursed costs and agreed profit, or is paid against a schedule of prices.

3.6 Public Private Partnership

A PPP has a subtle, but important, difference from the other procurement strategies, which is that the client is buying a service rather than buying assets. Hence, the client for a railway PPP will state his requirements (as an Output Specification) for the provision of train services, or the availability of the railway system, primarily in terms of journey times, station locations, capacity, frequency, quality grade, operating hours, and maximum failure levels; rather than specifying the assets necessary for their delivery. The client may specify some technical requirements, standards, and mandatory elements of the design, but should not be too prescriptive, leaving much of this activity to his suppliers.

Thus the essence of any PPP project is that a private sector entity, often known as a Special Purpose Vehicle (SPV), is given the right to deliver a service by building and operating assets. It borrows the capital, constructs the assets, and is then paid by the public sector client to operate the assets to deliver the Output Specification. The client only starts paying once the asset is fully operational, can withhold or reduce payments if the SPV fails to meet the Output Specification, and should always insist on a contractual right to terminate the PPP in the case of persistent poor performance. Payments from the client are used to remunerate the SPV’s borrowings, and pay the Operator, and residual profit goes to the shareholders in the SPV.

Throughout the life of the PPP, typically 20 – 30 years, the assets are normally owned by the SPV. This can be complicated where the project involves enhancing and renewing existing assets, such as is the case with the London Underground PPP. At the end of the PPP, the assets are transferred to the client and, usually, he will want to continue to use them economically for many more years. Therefore, the handover arrangements at the end of the PPP should be included within the contract, including asset condition, performance, and residual life expectancy, together with any final payment to the SPV.

The structure and partitioning of the deal or deals is also an issue for the client to determine, and depends upon what services he wishes to have delivered, and upon the political environment. All PPPs and privatisations comprise some combination of Design, Build, Finance, Operate, Maintain and Transfer components and, for railway projects, the assets involved may be the trains, the railway infrastructure assets (track, signalling, control systems, traction power supplies), the route civil engineering structures, and stations, depots and commercial property, in various combinations. Alongside these cost elements, the deal may also involve the private sector receiving income from fares, access changes, property rentals etc.

One aspect to be carefully considered is where the partitioning separates the main sources of income from the main sources of cost, as this can lead to both profitable deals on subsidiary
activities (e.g. commercial property) whilst increasing disproportionately the public subsidy requirement on the core business.

4. Some Examples of Privatisations and PPP’s

4.1 The Privatisation of the British National Railway

The British railway network is the oldest in the world, and had been starved of investment for decades when it was privatised in 1995-97. It had already been rationalised in the 1950s and 1960s, with many routes closed and steam traction replaced by diesel and electric.

The privatisation model selected was extremely complex, and the process carried out very rapidly in the final years of the Conservative Government. The model involved splitting the unitary British Rail (the public sector owner/operator of the national railway network) into over 100 private companies. These included passenger and freight train operating companies, contractors, consultants, equipment suppliers, and one owner / operator of the fixed railway infrastructure (but not the trains), namely Railtrack.

Following privatisation, the industry experienced unexpected demand growth from both passenger and freight customers, at a time when it was also attempting some modernisation of the network within the new contractual structure, and being heavily impacted upon by economic and Safety Regulation in a way that was beyond its control.

Many, well reported problems arose, including the increasing need for public subsidy, increasing units costs, and poor delivery of infrastructure improvements. This was because, essentially, Railtrack failed to grasp that its core function was as an engineering and infrastructure operating company, and had allowed the skill and experience vital to its success to fall into the hands of its suppliers, at a time when unexpectedly increasing demand for engineering services was causing the market to overheat. These problems culminated in Railtrack becoming insolvent in 2001, and its replacement by the not-for-dividend Network Rail. The complex multi-party structure still remains, however, and the Government is currently implementing further structural change.

4.2 London Underground Limited (LUL) PPP

LUL has a history, and current problems, similar to those of the British national railway. Much of the network is elderly, and in need of modernisation. The solution of the incoming Labour Government (in 1997) was a PPP, where ownership and operation of LUL remained in the public sector, and with modernisation and maintenance of the infrastructure and trains contracted to three private consortia, each with 30-year performance-based contracts. These were introduced in the first half of 2003, and with a total value of approximately £20bn.

The consortia’s responsibilities have many facets. Describing them in non-prescriptive terms, together with a payment mechanism that includes rewards and penalties, has resulted in very complicated contracts.

The contract negotiation process was lengthy, and with preferred bidders probably selected too early. Partly as a result, the bidders were able to push back a number of risks without necessarily reducing those elements of their price structure that had covered those risks. Nevertheless, the new structure is now operating, and the quality and reliability of train services are improving. Private sector funds are being invested in LUL’s assets and, perhaps most importantly, the Underground is free of the annual stop-go funding negotiation with Government.
The national Government and the private sector consortia (and their respective advisers) each believe they have a good deal overall, so a win-win solution appears to have been achieved. Transport for London (a public sector body under the control of an elected Mayor) did contest the PPP prior to financial close, but has since taken over client-side responsibility, and is working with the consortia to implement the service improvements.

Time will tell if passengers on the London Underground see continuing improvements over the next few years, which could not have been delivered without the PPP.

4.3 The East London Line (ELL) Project

The ELL is part of the London Underground, but operationally separate from the main network. It needs modernising. Adjacent to its northern extremity, an abandoned railway formation, mainly on viaduct, offers the opportunity to extend the ELL, connect it to the national railway at both ends, and thereby operate through services to a variety of destinations north and south of London.

The Government’s promoter, the Strategic Rail Authority, considered various PPP options for this £1bn project. Because of the small route length of the ELL, its interdependence with the national railway, and a shortage of Government capital funding, a Design-Build-Finance-Transfer (DBFT) solution was selected. This procurement model required the SRA (with Arup support) to specify the objectives, train service specification, and key Standards, and obtain the statutory powers. It was also required to prepare a preliminary design, to demonstrate a feasible technical solution.

A private sector partner would then be selected to modify and complete the design, and carry out the modernisation work. It would also finance the work through to completion, when it would be purchased and managed by Network Rail, who was expected to borrow the purchase cost through a corporate finance vehicle, and be reimbursed over the project life essentially through secured annual public subsidy.

There has been much discussion surrounding the PPP ‘credentials’ of the ELL’s DBFT concept. It would have succeeded in avoiding the use of public sector capital, because Network Rail was classified as a private sector company, albeit one entirely reliant on public subsidy. Where the client is in the public sector, however, DBFT would not qualify for ‘off balance sheet’ treatment.

Development of the technical and procurement strategies, and the tender documentation, had been in progress for over two years when the Government decided to transfer the project to Transport for London, in October 2004. It is now probable that the project will be implemented via a traditional Design & Build contract, funded from public sources.

4.4 United Kingdom, Channel Tunnel Rail (CTRL) Link

CTRL is Great Britain’s first high speed (300 kph) railway, and Arup has been key to the routing, economic viability, design and delivery of the 110 km-long project. It has led the majority of the engineering disciplines and environmental work through the preliminary and detail design phases.

After some years of public sector development of various routes, in 1991 the Government announced its decision to implement the route proposed by Arup and to take the CTRL project forward as a PPP. The Government invited international bids for the concession to design, build, finance, own and operate the CTRL, and London and Continental Railways Ltd (LCR), a Special Purpose Vehicle incorporated by its eight founder stockholders, won this concession. Four of them, including Arup, then formed a consortium called Rail Link Engineering that was appointed by LCR as its Project Manager and Engineer. As such, RLE is responsible for the whole of the project management, engineering design, procurement, construction management, services-during-construction, and commissioning of the CTRL.
RLE began work in June 1996 on design development, and the preparations for construction, Stage 1 of which began in October 1998 and Stage 2 in July 2001. Stage 1 was successfully completed on time and within budget in September 2003, and the whole line will be operational in 2007.

4.5 Athens Metro Extensions

Over the past decade, the metro system in Athens has been considerably extended under the leadership of the public sector Attiko Metro (AM) company. AM has built and is operating two new lines using a procurement strategy of full client-side design and specification, followed by the tendering and award of design & build contracts. This has included an extension to the new airport, opened in July 2004 immediately prior to the Athens Olympic Games.

It had become clear to AM in 2001/02 that four further extensions to the Metro were needed, and that sufficient public capital would not be available to fund them. Accordingly, KPMG and HVB, supported by Arup and SGI-Trademco, have now completed a study into a PPP structure for three of these extensions, concluding that Design, Build, Operate and Maintain (DBFM) is the best PPP option, and with the Contractor paid and incentivised against availability of the assets. This enables AM to operate the extensions directly, and to integrate operational control functions with those of the existing network.

Whilst a PPP is entirely technically and financially feasible, a number of significant client-side problems have been encountered, including the need to modify aspects of Greek procurement law, and for AM and the Greek Government to accept some cultural changes. These involve giving up rights to change project scopes and outputs without penalty once the PPP contracts have been signed, and also accepting the need to become more performance-based and less technically prescriptive in drafting contract specifications.

Development of the details of PPP tender documents is anticipated to commence during 2005.

5. Learning Points for Future Privatisations and PPPs

Accumulated experience from the above projects, and others, provides lessons for the future. Clearly the privatisation/PPP route is not a panacea, and there are many problems to be overcome on the route to delivering a successful project.

5.1 Client Ownership

Because of the role of railways within the infrastructure fabric of a nation, and the levels of public subsidy required, it is Government agencies who must specify what they want delivered by their railways within available levels of public subsidy. They must also decide on how the various elements of the privatisation or PPP are to be partitioned; whether as one all-encompassing concession, or a number of smaller contracts for separate aspects with the client taking responsibility for managing the interfaces between contracts. Whilst these strategic decisions should not be left to the private sector, it is often quite difficult for clients to provide clear direction, as external political influences can confuse the commercial objectives of the privatisation or PPP.

Also, should the private sector partner default, or have its contract terminated for poor performance, the client must be prepared to re-assume responsibility for the railway. So it must be reasonably confident that its partner will succeed, but also have contingency plans in place if events prove this confidence to be ill founded.

5.2 Funding
For railways, even the best privatisation / PPP is unlikely to avoid the need for significant public subsidy. Other than in very benign circumstances of which, perhaps, Hong Kong is the best example, railways will not cover their total costs, and many will not even cover their operating costs through passenger and freight revenue alone. Some level of public funding is likely to be necessary.

Over the life of the project, the funding cost will be higher for a PPP than for public procurement, because (most) Governments can borrow more cheaply than the private sector. PPPs are only economic if these extra charges, and client-side management costs, are offset by the tighter controls over specification and the competitive pressures on the private sector that PPPs enforce.

It must also be remembered that the private sector does not donate money to railways. It only invests, and it expects a return on that investment at least commensurate with the risks it is taking. The investment money has eventually to be repaid by the public sector client.

Some clients have difficulty accepting that this is the role of the private sector, but if public sector capital funding is unavailable, a PPP may be the only way to procure the project, in which case the client needs to accept any perceived economic, political, and cultural disadvantages.

In return, the client achieves delivery of the desired service and, in time, the physical project, and with a level of long-term cost certainty, as payments to the private sector occur at regular intervals, and are variable only within the limits of price indexation and the incentivisation regime.

5.3 Risk Allocation

When the private sector’s bankers are evaluating the cost of money, they will assess the risks, and price accordingly. Risks that are unclear, or which are not under the control of the private sector, are disliked and will either increase the cost of money or possibly derail the deal.

Experience over the past decade has shown that suppliers often underestimate costs and overestimate the revenues of large capital projects, notwithstanding careful estimating and the application of risk analysis to the results. A further allowance for “optimism bias” is now routinely applied to cost estimates.

Demand and revenue estimation carries additional levels of risk for suppliers as, over the long life of PPP projects, macro-economics and political policies can have major unforeseeable effects. These have caused some significant problems for suppliers on previous railway PPPs and, whilst apparently attractive for the client, a contract where the supplier is losing money and perceives this continuing for many years ahead is not in the best long-term interests of either party. Most suppliers will now only take revenue risk if their exposure is capped, and even then may price a worst case scenario. Consequently, clients are likely to secure the best deal if they retain or share revenue risk.

Suppliers are also unlikely to take the risk of securing statutory consents for the project, a process that is both expensive and uncertain. Clients should take responsibility for this, and resist engaging the market until key statutory consents and approvals are in place.

5.4 The Client’s Role as Technical Informed Buyer

In common with other safety-critical industries, railways are technically very complicated, and need considerable railway systems expertise if they are to be operated safely, reliably, and economically. All parties, including the client (who may carry the ultimate legal safety responsibility) must be technically competent in the discharge of their responsibilities.
A particular issue, where the Privatisation / PPP requires the separation of a public railway authority into a number of new companies, is the client’s retention of the knowledge and experience that only exists in the minds of the employees. Public sector bodies are often not very good at codifying Standards, or documenting asset specifications, condition, and performance. If that knowledge is lost through poorly planned redundancy programmes, or if key staff transfer to the private sector suppliers, then the client / infrastructure authority is no longer an informed buyer, nor in control of its assets. Clearly, restructuring or downsizing is a vital component of modernising a railway, but the pace of change must recognise the operational and asset knowledge needs of the new companies being created.

A vital component of this knowledge concerns the various technical interfaces between assets. A close understanding of, for example, the wheel-rail interface is vital to the safety of any railway, and where the interface is also a contractual boundary the need to specify the Standards applicable across the interface become paramount. Serious problems occurred in the UK in 2000 and 2001 because different companies were responsible for the condition of the train wheel and for the rail, and each used the maximum allowable tolerance permitted by the then Standards without realising that this situation was only safe if the other party used little or none of their tolerance simultaneously. Obviously, excellent interface management is an essential component of a successful privatisation or PPP.

5.5 Client and Supplier Behaviour

It must be understood that the primary responsibility of the private sector in PPPs is to maximise value for its shareholders by delivering what the contract requires, as long as it is in its interests to do so rather than not do so. Even when delivering the obligations of the contract, suppliers will seek to exploit weaknesses in the contract, or a client who wishes to vary it.

Thus, Privatisation / PPP contracts must be clear, unambiguous, and comprehensive, and should not be amended once signed, unless absolutely essential. They should be tested, prior to approaching the market, for acceptability to the private sector and, most importantly, that they will achieve the desired outcomes. The mechanisms that enable changes to be made, and for the financial consequences to be calculated, should be included within the contract and be clear and fair to both parties.

Recognising, however, that no contract is perfect, it is vital that the public sector client gets to know his potential private sector suppliers, at both corporate and individual Director / Manager level. A degree of comfort that the two parties can work together to achieve shared objectives, without seriously disadvantaging each other, is a helpful support to any contractual relationship. Within a mature market, partnering and alliancing agreements that support a robust contract have been found to be beneficial.

6. Conclusion

There is considerable experience of privatisations and Public Private Partnerships, particularly in Great Britain. From the successes and failures of past projects, a number of key lessons have been learned that should be incorporated within the development of future deals. Principal amongst them are:

- The necessity for the client to state his objectives clearly and without contradiction;
- Client acceptance of the financial and cultural realities of PPP initiatives;
- The importance of the client retaining or acquiring relevant industry sector knowledge;
- Recognition of the commercial remit of the private sector; and
• The need to prepare and administer clear, fair, and stable contracts that are not subject to subsequent amendment.

Building upon this experience, there are many opportunities to create, improve, and extend railway infrastructure economically using private sector capital and expertise, providing the potential pitfalls are understood, guarded against, and managed, by public sector clients and promoters. Being able to mobilise the skills and commercial focus of the supply industry to deliver the concisely-stated requirements of the public sector client, within a Public Private Partnership, has the ability to deliver the best solution for all parties, and thus safe, reliable, attractive and economic railway services for passengers and freight customers.